

First EPS-Workshop in the field of Applied Physics and Physics in Industry

Research Associateship in Experimental Nuclear Physics

There is a vacancy for an experimental physicist to join the nuclear physics group as a Research Associate at the Daresbury Laboratory, an establishment of the Science and Engineering Research Council situated in the North Cheshire countryside.

The Group is involved in a research programme on the Nuclear Structure Facility, a large tandem accelerator which currently is operating at up to 20 MV on terminal.

The principal areas of study are: direct reactions with light and heavy ions, production of exotic nuclei far from stability, nuclei with very high angular momentum, nuclear breakup and fragmentation and studies of isotope shifts and hyperfine structure using laser-induced resonance fluorescence. Experimental equipment includes advanced gamma-ray detector arrays, a Q3D magnetic spectrometer and a 1m scattering chamber. An isotope separator operates in either on-line or off-line modes in conjunction with an associated dilution refrigerator and a beam line for laser studies. A recoil separator has recently been brought into full operation and a heavy ion polarized source is in an advanced commissioning stage.

It is expected that the successful candidate will work in the general area of gamma-ray spectroscopy.

Applicants should possess a PhD degree or expect to obtain one during 1987.

An appointment will be made at a salary between £9,321 and £12,488 per annum depending on age, ability and experience. The post is available for a fixed term of three years and is superannuable.

CLOSING DATE: 28th August, 1987

For further information please write or phone Dr. J. Lilley on Warrington (0925) 603558.

Application forms may be obtained from and should be returned quoting reference DL/10 to: The Personnel Officer, Daresbury Laboratory, Science and Engineering Research Council, Daresbury, Warrington, Cheshire WA4 4AD, England.

Telephone: (0925) 603467 (24 hour answering service).

Daresbury
SCIENCE & ENGINEERING
RESEARCH COUNCIL

The Svedberg Laboratory, Uppsala University

Post-Doctoral Fellowships in Nuclear Physics

The Svedberg Laboratory is a newly established national laboratory built around three accelerators, a 6 MV tandem accelerator, a $K = 200$ cyclotron for light and heavy ions and a storage and cooler ring (CELSIUS) for proton energies up to 1360 MeV and corresponding energies for heavy ions, e.g. about 400 MeV/nucleon for fully stripped ions with $A \leq 40$. The tandem accelerator has been in operation since 1970. The cyclotron is under reconstruction and the first external beam was delivered on May 29, 1987. The CELSIUS ring is expected to become operational in 1988.

Two fellowships are open for applicants within three years after their Ph.D. (or corresponding) examination:

i) one in nuclear physics, especially elementary modes of nuclear excitations such as giant multipole resonances studied at intermediate energies. A monoenergetic neutron beam facility is being built at one of the beam lines of the cyclotron. The start of the experimental activity at this facility (primarily (n,p) reactions) is expected later this year.

ii) one in nuclear physics, especially few-nucleon systems at intermediate energies. A facility for studies of few-nucleon reactions is being planned at the CELSIUS ring.

The fellowships are for one year but can be extended to a maximum of two years. They amount to SEK 80 000.- per year (free of tax) plus travel to Uppsala and back. Applications with curriculum vitae, publication list and three letters of reference before October 15, 1987 to:

- i) Dr Leif Nilsson and
- ii) Prof. Arne Johansson,
The Svedberg Laboratory, P. O. Box 533,
S - 751 21 Uppsala, Sweden.

From April 26 to 28, 1987, the European Physical Society through its Advisory Committee on Applied Physics and Physics in Industry organized a workshop on "Low Resolution Pyroelectric Arrays", the specific aim of which was to bring together people interested in the research and development of pyroelectric and infrared detector arrays and their industrial applications. Over 20 people from England, France, Germany and Switzerland attended the conference which was chaired by Professor H. Melchior from the Swiss Federal Institute of Technology in Zurich and the author.

Although the pyroelectric effect was described by the Greek philosopher Theophrastus over two thousand years ago, it is only since about 1960 that applications of the effect for the detection of electromagnetic radiation have been seriously studied.

In several talks various aspects of infrared sensing with pyroelectrics were presented: passive IR detectors for sensing the thermal radiation of warm bodies with special sensor arrays for wideangle detection, the detection of CO₂ laser radiation, the detection of the radiation of flames, arrays suitable for radiometry and thermal imaging, etc. It was also discussed how pyroelectric detectors can be used for sensing temperature changes and pressure changes. It was felt by the participants, that the door for applications has just been opened.

A wide range of factors are important when selecting a material for use in a particular application. In various talks it was pointed out that, in general, a full calculation of responsivity and noise using the appropriate device and materials characteristics are necessary to get an accurate assessment of a material's potential. A variety of pyroelectrics like NaNO₂, PVDF, Vinylidene fluoride-trifluoroethylene copolymers, ceramics based on lead zirconate and lead titanate, LiTaO₃, barium strontium titanate, etc. were discussed. Preliminary experimental results obtained by r.f. reactive sputtering of thin films of barium and lead titanate were presented. An important trend in the current technology of sensors is oriented towards the achievement of compatibility with the techniques of microelectronics.

In brief, it became clear from the various presentations, that progress on the materials side will open the way to numerous new applications.

S. Straessler
Cerberus, Männedorf, CH